



# Forest Insect & Disease Management

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EVALUATION OF POTENTIAL INSECT AND DISEASE PROBLEMS AT THE CRADLE  
OF FORESTRY DEMONSTRATION NURSERY, BREVARD, N.C., 1979



SOUTHEASTERN AREA, STATE & PRIVATE FORESTRY  
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EVALUATION OF POTENTIAL INSECT AND DISEASE PROBLEMS AT THE CRADLE  
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ABSTRACT

No known forest tree seedling pathogens or insect pests were found in the newly established demonstration nursery. There is a potential for a variety of problems, depending on the species of seedlings grown and cultural technique used.

INTRODUCTION

A demonstration nursery was recently established at the Cradle of Forestry near Brevard, N. C. The location and design of the nursery is as close as possible to the one used when the Schenck Forestry School was in operation (1900-1909). We evaluated possible insect and disease problems before the nursery was placed in operation. The potential problems caused by the site and possible insect and disease associations are discussed in the results.

METHODS

Each nursery bed was sampled at three equally spaced points and the soil type recorded. Eight beds were soil sampled in about eight locations. The soil was collected, examined for pathogens and sent off for soil analysis. Potential problems by species were collected from the literature, personal experiences and personal communication.

## RESULTS AND DISCUSSION

No known soil pathogens were found in the soil samples. The soil type location of each soil sample by bed (figure 1) and soil analysis (table 1) indicates that hardwoods should grow well on the site, with no nutrient deficiencies. Conifer species would probably exhibit phosphorus deficiency symptoms. The only major insect or disease problem anticipated is white pine foliage blight, if white pine is planted. This disease can be controlled with fungicide applications. Damping off fungi will cause varying degrees of damage which can be minimized with fungicide seed treatments.

As is the case with all nurseries, the potential for unexpected pest problems exists. Root rots, foliage diseases, insect injuries, nutrient deficiencies, moisture stress, climatic conditions--working individually or in combination--can cause unacceptable losses. Proper nursery management and early detection of pest problems can reduce the amount of damage. We will place this nursery on an annual inspection program for detection of pest problems.

## SOIL TEST RESULTS

### Index Value

Soil test results are expressed as an index value rather than a quantitative value such as pounds per acre. The index values range from 0-100 with any value greater than the maximum expressed as 100+.

It is sometimes convenient to use the terminology of low, medium and high to express the degree of sufficiency of nutrients in the soil. For simplicity of interpretation the test index for most of the elements is considered LOW in the 0-25 range, MEDIUM in the 26-50 range, and HIGH at 51 and above.

### Index has Record Value

A record of a series of soil tests made on the same fields each year or at any interval of time is a valuable indicator of changes occurring. The effects of past lime and fertilizer treatments on the fertility level can be gauged quite well. For instance, if the index of any element has fallen from the economically safe mid range of 26-50 into the 0-25 range, some adjustment in the rate of application needs to be made. Otherwise, serious nutritional deficiencies will occur in some future crop. On the other hand, if the index continually rises to enter the indeterminate 100+ range, money has been wasted or unnecessarily invested in fertilizer, and rate of application can be cut.

Soil testing was done by the North Carolina Department of Agriculture.

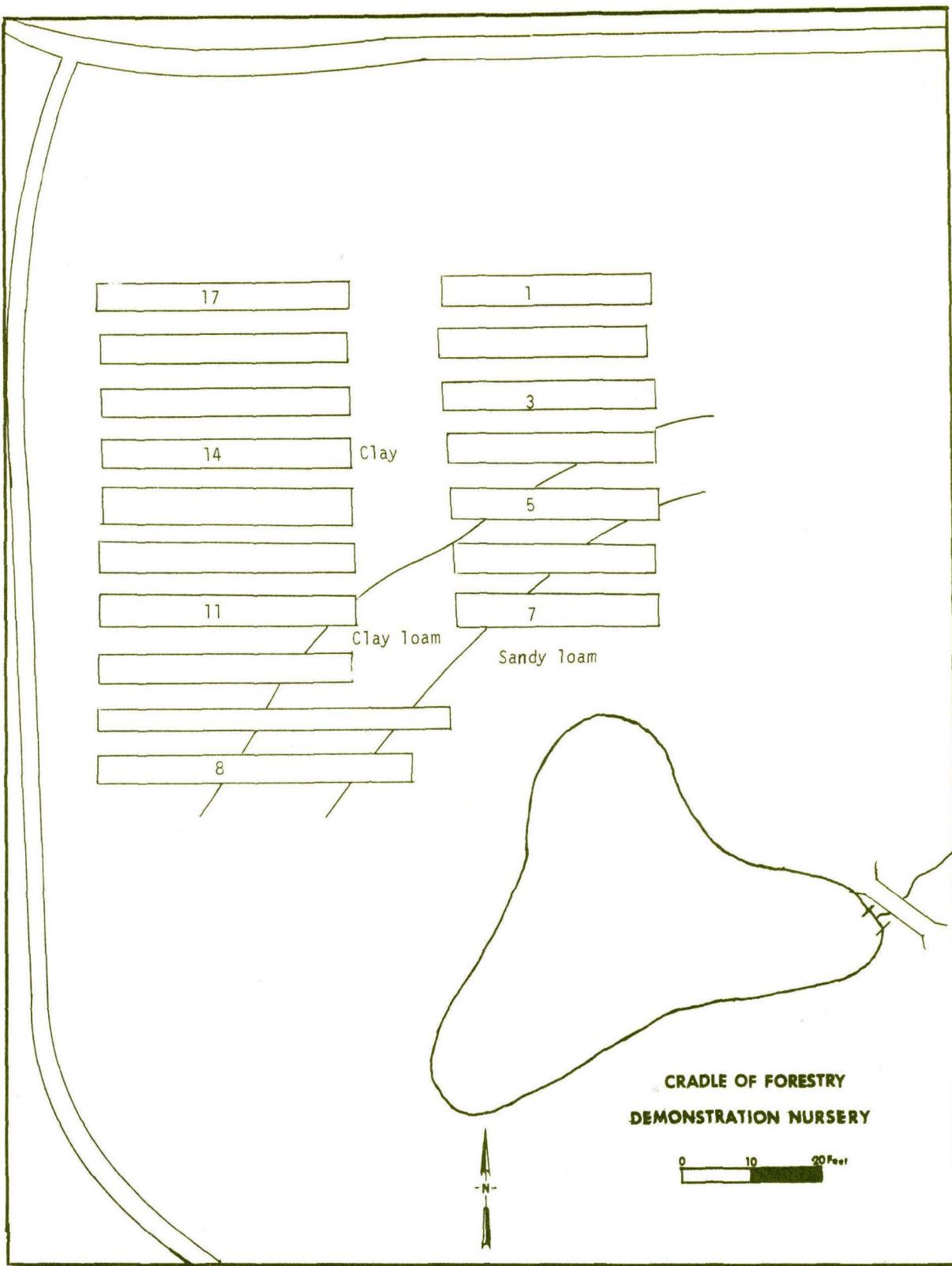


Figure 1. Soil types and bed numbers which correspond with the beds sampled for nutrients and pathogens at the Cradle of Forestry, 1979.

Table 1. Soil nutrient levels for eight beds sampled at the Cradle of Forestry, 1979.<sup>1/</sup>

Bed No. <sup>2/</sup>	Vol. wt. (grams)	Phosphorus	Potassium Index Number	Calcium	Magnesium	PH	Acidity	Manganese
1	.94	005	035	024	025	4.8	2.4	041
3	.97	023	041	051	025	4.9	2.4	074
5	.90	013	038	079	034	5.2	2.0	100+
7	.76	028	043	100+	040	5.3	2.0	100+
8	.82	027	031	100+	032	5.7	2.0	100+
11	.98	019	044	058	027	5.1	2.4	050
14	.98	006	038	024	037	5.0	2.4	035
17	1.00	014	041	062	058	5.3	2.0	100+

<sup>1/</sup> See Soil Test Results for interpretation of index values

<sup>2/</sup> Numbers correspond to nursery bed numbers shown in figure 1.